

REMARKS/ARGUMENTS

Claims 1-15 and 18-29 stand rejected, with claims 16 and 17 objected to in the outstanding Official Action. Claim 23 has been cancelled and claims 1, 17, 19, 22, 24-27 and 29 have been amended and therefore claims 1-22 and 24-29 remain in this application.

The Examiner's acknowledgment of applicants' claim for foreign priority and receipt of the certified copy of the priority document is very much appreciated. Additionally, the Examiner's consideration of applicants' previously forwarded Information Disclosure Statement is appreciated.

The Examiner objects to the drawings under Rule 83, alleging that the "latch mechanism" recited in claim 1 must be shown or that feature cancelled from the claim. Claim 1 is a method claim and thus no drawings are required to illustrate the method steps. Moreover, Claim 1 fails to recite any "latch mechanism." How or where the Examiner believes this is recited in claim 1 is not seen. Clarification of this objection to the drawings is requested, as applicants' drawings are currently believed to illustrate all claimed structures.

The Examiner objects to the application as allegedly failing to provide antecedent basis for the subject matter of claims. Specifically, in claim 1 the Examiner refers to "one latched state." It is well known by anyone having ordinary skill in the LCD art that bistable nematic LCD devices have two different stable states (this is set out in the preamble of claim 1). It is also known that a bistable nematic device when switched to

one state will stay "latched" in that state until switched to the other state. Moreover, the claim's reference to "one latched state" does not require *in haec verba* support in the specification, although this is clearly set out in applicants' originally filed specification. Clarification is requested as to whether the Examiner is objecting to claim 1, line 21 based upon a lack of antecedent basis or upon some other basis.

The Examiner also appears to object to the specification by stating "in claims 22 and 23, the steps of method claims." Applicants are at a loss to understand what or if this is an objection or rejection of claims 22 and 23 and if so, what the basis of the objection is. Clarification is respectfully requested.

The Examiner has objected to claims 17 and 25 with respect to antecedent basis for "the strobe waveforms." Applicants have corrected claims 17 and 25 to refer to the "row waveform" which has clear antecedent basis in the claims.

Claims 1, 22 and 23 stand rejected under 35 USC §112 (second paragraph) as allegedly omitting essential steps. Again, the Examiner's objection is not understood and clarification is requested. Line 24 of claim 1 specifies that each pixel can be addressed to latch into either stable state (it will be recalled that the device is a "bistable nematic device"). Moreover, line 22 of claim 1, as previously addressed by the Examiner, specifies a data waveform in combination with the row waveform causing "switching to one latched state." Therefore, applicants' claim 1 in two separate instances indicates that the various pixels are latched into one of two stable states, thereby providing the desired display. Clarification as to what is objected to by the Examiner is requested.

The Examiner suggests that in claim 22, the steps of measuring the temperature and adjusting the voltage to compensate for the temperature are not positively recited. Applicants have reviewed claim 22 and the statement that "the temperature of the liquid crystal material is measured and voltages adjusted to compensate for switching characteristics with the temperature" is believed to recite the steps of "measuring" the temperature and "adjusting" the voltage pulses accordingly. However, applicants have revised claim 22 to set forth the separate steps. Accordingly, no further objection is believed appropriate. Claim 23 has been cancelled without prejudice, thereby obviating any further objection.

Claims 1-3, 5-15, 18, 21 and 23-29 stand rejected as being anticipated by Graham (WO 94/18665). The Examiner admits that Graham relates to FLCD (ferro-electric liquid crystal displays) and that the present invention deals with bistable nematic devices. The Examiner also notes that the Graham disclosure teaches that a driver circuit designed to RMS address twisted nematic type of displays could also be used for FLCDs.

The dramatic difference between ferro-electric liquid crystal displays and bistable nematic liquid crystal displays is well known to those having ordinary skill in the art. Applicants' claim 1 specifies, not the particular "display panel structure" disclosed in Graham as discussed by the Examiner, but a row waveform which has at least two unipolar pulses for switching the device to a first state and at least two unipolar pulses for switching the device to a second state. The result of the waveform is that each pixel in

the LCD can be latched to either of the two stable states with substantially net zero DC voltage applied to the device.

While a similar waveform is shown in the Graham reference (cover page "row waveform") as being sufficient for driving an FLC, it would not be obvious to one of ordinary skill in the art that such a waveform would or could be used to switch a bistable nematic device. The Examiner points to nothing in the Graham disclosure that suggests that the disclosed waveform would have any benefit for any other device, let alone a bistable nematic LCD.

The Graham reference specifically refers to RMS addressing of twisted nematic displays. In RMS addressing (RMS stands for Root Mean Square), the polarity of the field is unimportant. Thus, various RMS addressing schemes effectively use an ac type signal, as prolonged dc can degrade the liquid crystal material, and the liquid crystal material reacts just as well to ac voltage.

FLCs are addressed in a very different way. As Graham teaches, FLCs switch on receipt of a pulse of a suitable voltage amplitude and duration. Voltage levels required are relatively high. As Graham notes in paragraph 3 on page 2, high voltage circuitry for driving large FLC panels was not available. The invention described in Graham is to apply voltage reduction waveforms to the addressing waveforms so that each waveform applied is reduced to a level that a standard driver can produce, but that in combination with the additional waveform produces the high voltage levels needed to switch FLCs. Although Graham does teach that it is possible to use the same driver

circuit technology, there is no teaching in Graham that one would seek to use RMS addressing methods in order to address an FLC (indeed this wouldn't work even if it were tried).

Additionally, there is no suggestion at all that one of ordinary skill in the art would seek to apply FLC addressing methods to bistable nematic liquid crystal systems. Thus, Graham does not teach a method of addressing a bistable nematic liquid crystal display, and indeed those having ordinary skill in the art would well understand that FLCs and bistable nematic liquid crystal materials behave in different ways in the presence of an applied voltage and therefore there is no reason to assume that an addressing scheme suitable for FLCs would also be suitable and advantageous for bistable nematic displays.

The Court of Appeals for the Federal Circuit has noted in the case of *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 USPQ 481, 485 (Fed. Cir. 1984) that "[a]nticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim." Clearly, because neither Graham nor Hughes teaches the claimed invention, there is no basis for an "anticipation" rejection.

Even if the Examiner should apply an obviousness rejection in the future, the Examiner is reminded that the Court of Appeals for the Federal Circuit has held that "the PTO has the burden under Section 103 to establish a *prima facie* case of obviousness." *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). None of the references teach the

claimed invention nor do they suggest applying the claimed waveforms to bistable nematic LCDs.

With respect to the combination of references, the Federal Circuit has also held that “teachings of references can be combined *only* if there is some suggestion or incentive to do so.” *Id.* at 1599. Here the Examiner has provided no support for the allegation of it being obvious to combine these references.

The Federal Circuit has also opined that it is “error to find obviousness where references ‘diverge from and teach away from the invention at hand’.” *Id.* As noted above, the references all are believed to teach solutions to problems other than the addressing of bistable nematic LCDs and thus teach away from the claimed invention.

With respect to the alleged motivation for combining references, the Examiner has provided no support. In the recent case of *In re Rouffet*, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998), the Court held that

“the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.”

Nowhere in either of the cited references does there appear to be any recognition of the problem solved by the claimed invention.

Clearly there is no disclosure of applicants' method of addressing a "bistable nematic device" contained in the Graham reference, and should the Examiner believe to

the contrary, she is respectfully requested to point out exactly where this disclosure is contained.

Claims 1-15, 18-21 and 23-29 stand rejected as anticipated by Hughes. Again, it is noted that the Hughes reference is entirely concerned with FLCs and nowhere in the document is there mentioned any method for addressing a bistable nematic liquid crystal device. Again, the same arguments noted above appear, except that there is no mention of any nematic liquid crystal device in the Hughes reference. Should the Examiner believe that Hughes does contain such teaching, the Examiner is respectfully requested to identify such teaching. Moreover, it is noted that Hughes does not teach the use of row waveforms having at least two unipolar pulses for switching to a first state and/or two pulses for switching to a second state. Where or how the Examiner believes that Hughes contains the teaching of applicants' independent claims 1 and 25 is respectfully requested.

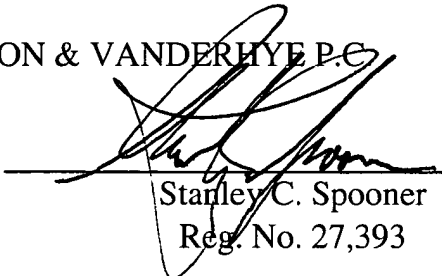
Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that pending claims 1-22 and 24-29 are in condition for allowance and notice to that effect is respectfully solicited. The Examiner's indication of allowable subject matter in claims 16 and 17 is very much appreciated. Should the Examiner be of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, she is respectfully requested to contact applicant's undersigned representative.

HUGHES et al
Appl. No. 09/914,854
January 12, 2004

Respectfully submitted,

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